

ANALYSIS OF FIFTEEN FACTORS AFFECTING
MENU PLANNING COMPETENCIES

by

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TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	ii
LIST OF TABLES	v
INTRODUCTION	1
REVIEW OF LITERATURE	2
Historical Background of Menu Planning	2
Early Principles of Menu Planning	4
Current Practices in Menu Planning	5
Cycle Menus	5
Selective Menus	6
Modified Menus	8
Computer-Assisted Menu Planning	9
Linear Programming Method	10
Random Selection Method	11
Menu Types for Computer Use	12
Nonselective Menu	12
Selective Menu	12
Computer and the Dietitian	12
Overview of Competency-Based Education	13
Pros of Competency-Based Education	14
Cons of Competency-Based Education	15
Competencies in Dietetic Practice	15
METHODOLOGY	17
RESULTS AND DISCUSSION	23

Characteristics of the Sample	23
Menu Planning Practices	23
Menu Planning Competencies and Subcompetencies	28
Competency Statement 1	30
Competency Statement 2	35
Competency Statement 3	38
Competency Statement 4	42
Competency Statement 5	48
SUMMARY AND CONCLUSIONS	50
REFERENCES	53
APPENDIXES	57
A. Research Instrument	58
B. Supplementary Table	66

LIST OF TABLES

Table	Page
1. Priority score grid	21
2. Demographic profile of respondents	24
3. Responsibility for menu planning	26
4. Menu planning practice	27
5. Computation scheme for criterion measures	29
6. Analysis of variance of effects of selected demographic variables on menu planning competency 1 and related subcompetencies	31
7. Analysis of variance of effects of selected demographic variables on menu planning competency 2 and related subcompetencies	36
8. Analysis of variance of effects of selected demographic variables on menu planning competency 3 and related subcompetencies	39
9. Analysis of variance of effects of selected demographic variables on menu planning competency 4 and related subcompetencies	43
10. Analysis of variance of effects of selected demographic variables on menu planning competency 5 and related subcompetencies	49
11. Summary of subcompetencies with significant differences on the three rating scales	51
12. Summary of overall competencies with significant differences on the three rating scales	52
13. Statistical summary of analysis of variance of competency and subcompetency scores	67

INTRODUCTION

The menu is the core of every foodservice operation. Menu planning has been defined by Eckstein (1) as a biphasic process consisting of food items to be served and the time of service. Menu planning involves numerous interrelated factors which must be considered and which require certain competencies by the dietitian.

Loyd and Vaden (2) in a research survey studied the expectations of hospital dietitians of the essential competencies in the administrative and clinical aspects of entry-level practice. The competency statements were rated as to importance and the amount of supervision required at entry level. Menu planning was the most important competency in the administrative component.

In an extension of the Loyd and Vaden research, Morales et al. (3, 4) made an intensive study of the importance of menu planning in the opinions of practitioners categorized by years of practice. A mass of data was assembled pertaining to demographic characteristics of the sample, responsibility for menu planning, and menu planning practices which did not relate specifically to the objectives of that research. The purpose of the present study was to examine critically all facets of the data for relationships to menu planning. In this study the effects of fifteen variables on menu planning competencies were analyzed using data collected by Morales (5). This research was stimulated by the recommendation of Morales that "it could be enlightening to analyze research scores by criteria other than levels of practice" (5).

REVIEW OF LITERATURE

This study is based upon research by Morales (5) on menu planning competencies and the review of literature will begin with menu planning. The literature will conclude on the topic of competency based education.

Historical Background of Menu Planning

Mayers (6) stated that the menu, as it is known today, is only about 200 years old. He explained that menu is a French adjective meaning "small, slender, detailed," which was derived from the Latin "minutus." He said menu was defined initially as the sequence of a number of dishes served to patrons, as during banquets, or a list of food items usually including beverages available to patrons of restaurants.

Mayers (6) claimed that menu planning began with the Babylonians about 3000 B.C. when large quantities of wine were consumed during banquets. The nobles ate little during banquets, and what little was served was placed in front of them, usually a few dishes of meats, cakes, and fruits such as grapes, dates, apples, pears, and figs. The ordinary citizens of Babylonia, in contrast to the nobles, consumed great amounts of foods during times of festivities. Mayers mentioned that one ruler ordered all citizens of Sparta to eat at public places and common tables, and every citizen was required to contribute certain amounts of flour, fruits, or meat. The cooks preparing the food in these public places were prisoners.

Kreck (7) pointed out that Greeks did not engage in gorging as did Romans. The simple staples of the early Romans were grapes for wine,

olives, and wheat. With time and success, however, the Roman appetite grew. One statesman, Cato the Elder, found it necessary in 140 B.C. to issue certain sumptuary laws to the citizens of Rome. One of these laws limited expenses for private dinners, and the Romans had to leave gates and doors of their houses open so inspectors could enter unannounced to enforce the law.

Apicus, a Roman nobleman, as cited by Frost (8) left a collection of recipes indicating the types of dishes prepared at the time. A simple menu, as served around 100 A.D., was as follows:

- first dish: lettuce, onions, fish and sliced eggs;
- second dish: sausage, cereals, cauliflower, bacon, and bean; and
- third dish: pears, chestnuts, olives, peas and green beans.

A more elaborate menu served as the main meal of the day (*cena*) was described by Showerman (9) as consisting of the following three parts:

1. *Gustus* or *antecena*: eggs, lettuce, fish, and radishes served with light wine, sometimes sweetened with honey;
2. *Mensae primae*: several successive plates or courses including meat and vegetables served with ordinary wine mixed with water; and
3. *Mensae secundae*: a mixture of cakes, pastries, fruits and nuts served with wine.

He explained further that it was customary to serve eggs, hard boiled or sliced, in the *gustus* and apples in the *mensae secundae*; thus the saying, "from eggs to apples" might have stemmed from the custom.

Showerman (9) noted that the description of the *cena* might be the first rough evidence of a banquet menu or the rules of etiquette for a banquet. A banquet-like meal of this period began with some light food before the main course and concluded with something sweet. Showerman claimed that evidently eggs were served as *hors d'oeuvres* and apples as desserts.

Early Principles of Menu Planning

The early principles of menu planning were listed by Gollmer (10).

1. Begin the meal with a well presented small dish or dishes containing minimum fat.
2. When presenting the main course of the meal, serve first the food with the least amount of fat.
3. Use spices.
4. Use alcohol in cooking and serve alcohol with the meal.

Frost (8) stressed that the knowledge of nutrition by the Romans could only be conjectured since it could not be substantiated. He suggested that examination of the menus could give an indication of the adherence to any nutritional rules. He explained that of all foods, cellulose could not be digested, but it was found only in very small quantities in fruits and vegetables. All other foods could be digested by a healthy individual although it took longer for some foods to be processed by the body. Carbohydrates were digested quickest, proteins second, and fats slowest. Another consideration was that the digestive process starts with gastric secretion which occurs automatically with the appetizing presentation of food. Also, certain beverages, including alcohol, and spices further the digestive process. Frost (8) indicated that the Roman menu implied knowledge of these nutritional facts.

Frost (8) stated that it had always been a complicated problem to include in the daily or weekly menu foods that were suited to individual preferences and needs of each member of the family. Modern methods of living, though adding to the complexity of this problem, have introduced many factors which make menu planning easier. When the criterion for meal planning was nothing more than serving food that would gratify the appetite, the housewife planned menus to include a variety of all types of meats. The individual was allowed to choose according to whim and

desire. As long as people lived on the farms, this extravagant method of planning was more or less unchallenged. When people moved in great numbers to the cities, this procedure gave way to a regimen which was saner, more economical, and free from excesses and abuses. The redistribution of population in the cities led to the increase and establishment of market facilities. The cost of meat, vegetables, and fruits transported from great distances and kept in storage over long periods naturally became much greater. These increasing costs caused inquiry into the prices of foodstuff, thus stimulating the art of menu planning (8).

Current Practices in Menu Planning

Cycle Menus

Pinney (11) remarked that successful menu planning consumes a considerable amount of professional time, and that the time demands in most hospitals are excessive. The author stressed that "the progressive dietitian must avail herself of all possible time saving devices and the cycle menu is found to be a tool for more consistent menu writing and a decrease in preparation time."

Gatten (12) pointed out that the exact repetition of each item on the menu enables the user to draw some valid conclusions about the popularity of each item in relation to others on the same menu. The researcher asserted that the dietitian could forecast more accurately the amount of each item which should be prepared for a particular meal. According to Gatten (12), cycle menus are designed by deciding the length of time for each cycle and the number of repetitions. The writer advised against making a cycle too long. He indicated that the cycle

should repeat three or four times within some specified period, and that each menu should be numbered for identification.

Pinney (13) advised that a cycle menu should be used as a guide for convenience, not a fixed pattern. Hubbard and Sharp (14) pointed out that menus must represent the dietitian's best efforts and be corrected before being repeated. They stated that advantageous as a cycle menu is, it should not be considered ideal in every situation. They stated further that menu repetition might become monotonous if the cycle was too short or if the same food was presented on the same day each week. Cycle menus could be more costly if availability of food items were not considered. The authors concluded that if these disadvantages could be resolved and the menu developed properly to meet the needs of a particular foodservice organization, the cycle menu could become an effective management tool.

A cycle menu was defined by West et al. (15) as a "set of carefully planned, tested menus that are used in rotation for a certain number of weeks during a given season of the year." They exemplified that menus could be planned for three or four weeks, at the end of which time the same menus were repeated. These authors (15) also believed that a cycle menu is advantageous because after the initial planning has been completed, time is freed for the planner to review and revise to meet challenges such as holidays, vacations, or changes in personnel. Over-production, waste, and over-purchasing are reduced.

Selective Menu

The advantages of selective menus in hospitals, as enumerated by Gordon (16), were less plate waste, improved patient morale, and educational value for teaching adequate and therapeutic diets. Vivian (17)

noted that communication between patients and the dietitian during the selection of food items afforded an opportunity for teaching better food habits.

Pearson (18) stated that the hospital diet can meet the nutritional needs of patients only if the food served is eaten. She questioned whether the patient would eat better if there was a selection of food items on the menu. Pearson concluded that additional study was needed in this area. Pinney (11) observed that selective menus did not increase the problems if care was used in pairing of items.

Swenson (19) stated that the common method of menu writing offering no choices of food results in patient dissatisfaction with the variety and increased plate waste. These facts led to the development of selective menus for patients and employees on regular and modified diets.

Flynn (20) believed that the selective menu is not worthwhile because it is more expensive than non-selective menus since the variety of foods is almost doubled. Also, the selective menu increases the complexity of menu writing since it can be difficult to create sufficient variety and satisfy basic nutrition requirements while minimizing costs.

Cabot (21) believed that introducing a selective menu offers a greatly improved foodservice provided that other elements of the service, such as food quality, are not reduced. The author contended that the selective menu offers patients a choice of foods and also allows participation in the selection process by mulling over selections and marking choices on the menu. The author explained also that employees benefit from selective menus since eating in the hospital cafeteria is

part of the fringe benefits, and these menus allow a greater variety of food.

Hirsch et al. (22) undertook a study with the purpose of investigating the factors that account for the greatest amount of plate waste in a hospital. Data were collected from thirty-five patients for two weeks at the University of Kansas College of Health Sciences and Hospital. The study indicated that the most important factors affecting plate waste were a lack of desire to eat and the serving of unwanted or non-selected food items. The researchers concluded that the selective menu system is an effective method of reducing plate waste in terms both of amount of food and percentage of calories wasted.

Modified Menus

Brakel (23) stated that hospital patients usually want and deserve to know the facts about their treatment. When a modified diet is part of that treatment, early knowledge and acceptance of the diet are important factors not only while in the hospital but also after discharge. Sebrell (24) referred to modified diets as "nutritional therapy" which is essential in trauma or acute illness. The illness could be a consequence of malnutrition, either induced by a poor diet or dysfunction of the affected body parts.

Pearson (18) stated that the number of dietary modifications required for patients could be decreased if a normal selective menu was used since more choices would be available. Individual therapeutic diets would not be needed and the diet kitchen could be eliminated.

Molleson (25) defined a modified menu as a normal diet in which one or more nutrients are restricted for specific reasons. Williams (26)

agreed that the nutritional components of the normal diet might be modified and thus become a therapeutic diet. She explained that these changes may include modification in one or more basic nutrients, energy value, texture, or seasoning.

Computer-Assisted Menu Planning

Balintfy and Blackburn (27) stated that menu planners generally intend to achieve flavorful, nutritionally balanced diets at minimum cost. Variables of variety, texture, color, nutritional requirements, and constraints of preparation time, labor force, and equipment are involved. The simultaneous integration of all these factors becomes overwhelming if done manually when combined with the problem of determining the real cost of each menu item. The authors said the computer, supplied with the right data and instructions, can plan menus which are superior in many aspects to those based upon human decisions and intuition. Balintfy and Nebel (28) indicated a 30 per cent savings in food cost in menus planned by computer over those planned by experts.

Montag (29) stated that "menu planning is the problem of finding the optimum combination of menu items in a given structure such that a pre-determined set of objectives are met for a sequence of days." The tasks that must be completed before implementing menu planning by computer are standardization of recipes and quantification of variables. Tedious as these tasks are, computer-assisted menu planning is worthwhile because of benefits such as cost reduction, satisfaction of nutritive requirements, guidance in purchasing, and reduction of manual efforts. Dougherty et. al. (30) recommended further research in computer-assisted menu planning

to establish methods of quantifying and defining variables such as color, flavor, texture, labor, and equipment utilization.

Eckstein (31) stated that acceptance of computer-assisted menu planning has been slow and not widespread. The amount of work required to prepare data for the process is prohibitive. She further stated, however, that once a program is developed for planning menus, there is potential quality of control over the critical variables.

Linear Programming Method

A mathematical model of a diet emphasizing minimum cost of physiological subsistence was developed by Stigler in 1943 as described by Smith (32). The diet was planned for a 70 Kg male city dweller. Nutritional standards were based on recommended dietary allowances of 1943 and retail prices on reports of the Bureau of Labor Statistics. Allowance was not made for variety, palatability, or cultural consideration. He stated that foods in the diet were rich in wheat flour, corn meal, evaporated milk, peanut butter, lard, cabbage, potatoes, spinach, dried navy beans and beef liver.

Balintfy (33) developed multistage linear programming models since menus were customarily planned for an entire cycle at one time. Each day was considered a stage with stated objectives to be optimized but with carry-over of nutrients such as calories and vitamin A. This allowed solutions in which some nutrients, such as ascorbic acid, were met daily while others were averaged over the cycle.

Baust (34) reviewed previous linear programming applications and shortcomings, particularly Balintfy's Computer-Assisted Menu Planning (CAMP) system, and noted the following limitations:

1. inadequate control of color, texture, and major ingredient repetition;
2. menu item incompatibility resulting from use of absolute rather than cross-correlated preference ratings; and
3. failure to consider kitchen and service facilities and available manpower for production.

Baust (34) concluded that "until procedures could be developed for quantifying data, an alternative approach to computer assisted menu planning was necessary." He suggested a man-machine system in which feedback of dietitians' corrections could aid the computer in "learning" which items are incompatible.

Linear programming methods are designed to find optimal solutions to problems of selecting nutritionally balanced menus at least cost. All possible menu items are evaluated systematically, and the best choices are selected. The system has been adapted to the specific needs of several hospitals (35).

Random Selection Method

Brown (36) planned menus for twenty-one days using 152 menu items in each of seven menu classes for a Kansas State University residence hall foodservice. Selections of menu items were done by using a random number selection program. Seven of the menus were selected for close analysis with emphasis on the palatability factors of texture, flavor, color, shape, and preparation methods. She concluded that much work on the random selection technique of computer menu planning was needed before the system could be used.

Eckstein (37) used the random process to develop dinner menus for college residence halls. Items were selected and tested to determine whether they met pre-determined acceptability criteria of meal cost, texture, shape, flavor, variety, repetition frequency, acceptability, and

miscellaneous minor factors. After completing the selection of menu items, the menu was checked. The entire day's menu was considered as a unit and was checked vertically for adequacy and horizontally for daily repetition.

Menu Types for Computer Use

Nonselective Menu. Balintfy (33) reported a successful attempt in formulating nonselective, low cost, nutritional diets for hospital patients. Data processed by the computer included nutrients, costs based on yield adjustments, standardized recipes, serving portions, and patient preferences.

Selective Menu. Gue and Liggett (38) attempted the adaptation of methods of mathematical programming with digital computers to planning selective menus. Results from an exploratory study indicated success in adaptation of Balintfy's nonselective menu planning methods. The initial emphasis was placed on adequate nutrition and nine nutrients were considered. Provision of choice from each nutrient category was sought. Variation in menus was a third criterion (38). Cost savings were not as dramatic as those proposed earlier by Balintfy and Blackburn (27) and because of random selection of menu items by patients, Gue and Liggett (38) found the savings difficult to predict.

Computer and the Dietitian

Gelpi, Balintfy, Findorff, and Dennis (39) asserted that although powerful techniques were available for menu planning, difficulties associated with the quantification of qualitative information such as texture, flavor, color, and separation ratings may require intervention

by a dietitian to achieve esthetically satisfactory menus at least possible cost.

Hoover (40) remarked that the work of the dietitian has changed dramatically as the tasks of numerical manipulation, report preparation, and routine decision making have been delegated to computer programs for fast and error-free processing. Dietitians are not being replaced by the computer. Instead, professional staff is being assisted by a powerful tool which frees time for making complex decisions and for patient care and systems development.

Overview of Competency-Based Education

Klingsteidt (41) stated that the initial usage of competency-based education was the development of programmed instruction designed to train people in a step-by-step manner to reach a preconceived goal. He noted that the final pressure resulting in competency-based education was the demand for the specification of criterion levels of performance by many funding agencies.

Burns (42) stated that objectives form the core of performance and competency-based education. The author defined objectives as descriptions in behavioral terms of what the learner should be able to accomplish at the end of any instructional period. He insisted that valid objectives are extremely helpful in devising instructional strategies and evaluating competencies. Most competency-based or performance-based approaches in professional education specify objectives in explicit forms and hold prospective practitioners accountable for meeting them.

Bell (43) defined competency-based education as the minimum knowledge, skills, affective behavior, and judgment which an individual is

certified to possess on a set of criteria and level of expectation. Reilly (44) asserted that competency-based education requires students to demonstrate mastery of certain fundamental skills; and such a program generally requires concrete objectives of learning and measurement of proficiency by examination.

According to Reilly (44) competency-based education should include the following: individualized instruction, instructional modules, student rate of progress, and emphasis on exit rather than entrance criteria. He warned that the absence of these elements shows a lack of evaluative criteria for choosing competency based curricula.

Pros of Competency-Based Education

Wise (45) indicated that some supporters see the movement as a means for holding schools and teachers accountable within an otherwise diffuse and imprecise profession. The staunchest supporters of competency-based education, however, are citizens who have been concerned about school accountability for the tax dollar.

Henderson (46) stated that competency-based education is not a means to impose rigid standards on schools but rather an effort to open up the educational process. He (46) remarked that the successive step approach has distinct advantages. By using an instructional manual, each student can know precisely what he is expected to learn at each step and thus can teach himself. According to Henderson, other advocates said competency-based education systems with often narrowed down objectives enable teachers to attend more to the education of the bottom 10 or 20 per cent of students who have been lost in the shuffle.

Cons of Competency-Based Education

Wise (45) described competency-based education as one of the most recent developments in the increasing efforts to reform education. He contended that because policies mandate inappropriate and inadequate tools, the result is "growing centralization, narrowing of educational goals, and increasing bureaucracy with its concomitant proliferation of procedures and regulations." He stressed that if these trends were carried to their clearly foreseeable extremes, the result might be a national system of education or fifty state systems which are virtually indistinguishable.

Anderson (47) stated that the most serious fault that critics find with competency-based education is that it offers the promise of accountability within an imperfectly understood system. Some critics complained that it could trivialize and narrow educational goals. Because of the importance placed on test results, minimum goals can be mistaken for maximum. According to the author, critics also pointed out that the examinations were expensive to devise, administer, and revise. These costs plus the expenses of extra remedial programs and possible lawsuits resulting from test failures could increase the cost of education by millions of dollars. Other critics viewed the movement as a strong force to discriminate against the minorities because norm referenced tests used as the criteria for promotion could be biased (47).

Competencies in Dietetic Practice

Bedford (48) made a study to determine the affective competencies of the entry-level dietitian and establish criteria for the measurement of these competencies. The researcher used the delphi technique in evolving

the affective competency statements. This technique made it possible to collect the data without assembling the participants. The findings of the study disclosed five components of the affective competencies as human, technical, conceptual, personal, and professional.

Loyd and Vaden (2) surveyed the expectations of dietetic practitioners for entry-level generalist dietitians. Competencies developed by Cagguila (49) were used as the basis for the research. The Loyd and Vaden study (2) was limited to hospital dietitians since they comprised the largest group within the profession. Four random samples of 200 dietitians were drawn from the population. The results of the study indicated that menu planning was the most important area of expertise.

Morales reported (4) results of research on menu planning competencies in administrative dietetic practice. Menu planning was chosen for the study because it was the area in previous research by Loyd and Vaden (2) ranked by practitioners as most essential for entry level administrative practice. The research data were analyzed by levels of practice of the participants (4). Morales found that the practitioners with more extensive experience gave a higher rating to the elements of importance and time consideration than did those of less experience. Morales concluded with the statement that this research data could also be analyzed by criteria other than levels of practice.

METHODOLOGY

Since this study was based upon data collected by Morales which was not specifically pertinent to his objective, the methodologic background of the Morales data will be presented by excerpts from "menu planning competencies in administrative dietetic practice" (3, 4).

The administrative competencies from the Cagguila study (49)¹ were categorized into five areas of expertise, derived from "Plan IV Guidelines for Membership" in A.D.A. (50). Practitioners' ratings as to the essentiality of the competencies (2) within each of these areas were averaged, and means were ranked as follows:

<u>areas of expertise</u>	<u>mean essentiality rating</u>
menu planning	2.67
production	2.63
personnel management	2.47
procurement	2.25
administrative management	2.09

Menu planning was the area ranked most essential for entry-level administrative practice and thus was selected for this study.

Phase I: Preliminary instrument development

Data base. The five major competency statements pertaining to menu planning from Cagguila's study (49), as adapted by Loyd and Vaden (2), were used in this research:

(a) Plans menus which incorporate principles of good menu planning, i.e., adequate nutritional content, color, texture, shape, and variety.

(b) Plans menus which incorporate special nutritional and/or taste requirements of individuals and groups within the institution or program.

(c) Plans menus which conform to budget and/or cost requirements, equipment, time, and personnel availability.

(d) Uses effective merchandising techniques in the presentation of food to patients and/or clients, e.g., menu design.

¹Reference numbers changed from Morales to reflect sequence in this paper.

(e) Analyzes menu as to nutritional content, cost, and client acceptance, and modifies menu when analysis indicates it is needed.

Since the competencies were multifaceted, each was divided into sub-competencies. Descriptor items were desired for each sub-competency.

Interview question form. Competency statements required for this study were developed in several phases. The first consisted of personal interviews with selected hospital administrative dietitians in Kansas and Missouri. The question form used in the interviews was based on the above five menu-planning competency statements with related sub-competencies. Questions were designed to ascertain knowledge, attitudes, and skills required by a dietitian.

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Identification of interviewees. The membership rosters of the Kansas and Missouri Dietetic Associations were examined to determine where registered dietitians in administrative positions were employed. With the assistance of A.D.A. members on the university faculty, twenty administrative dietitians in area hospitals were selected for interviews.

The dietitians' participation was sought by telephone; all agreed to an interview, and a date and time were established. The telephone agreement was followed by a letter confirming the appointment. The day before the interview, each individual was called to reconfirm the appointment.

Interviews. Before the interviews, the researcher and an assistant conducted several practice interviews with graduate students and local dietitians to discover possible problems in the technique.

The researcher and an assistant conducted all interviews without incident. The participants expressed interest and appeared enthusiastic, and many requested a copy of the final results. Interviews lasted from 45 to 60 min.

Phase II: Developing the survey instrument

INITIAL DEVELOPMENT

The five drafts. The twenty tapes from the interviews were analyzed to determine salient points expressed by the practitioners. The first draft of the questionnaire, derived from the interviews embodying knowledge, attitudes, and skills, resulted in 607 descriptive statements related to the five competencies. Since many of the statements were duplicated or related, they were either reconstructed or condensed. Reducing duplication resulted in a second draft of 174 descriptive statements, hereafter referred to as "descriptor items" or "descriptors."

To reduce further the quantity of competency descriptors, the second draft was sent to ten of the twenty interviewees with a cover letter asking them to select the two most important competency descriptors in each sub-section. All ten instruments

were returned, and responses were used to develop draft three, which contained ninety-two competency descriptors.

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Two additional drafts of the instrument were used to convert the competency descriptors into behavioral terms and to improve the nomenclature of the statements.

Instructions for completing the questionnaire, plus an example, were formulated to be as comprehensive and complete as possible. The demographic data and general information included:

- type and size of hospital
- number of dietitians on the staff
- position title
- number of years in dietetic practice as an A.D.A. member
- whether the respondent was a registered dietitian
- whether the respondent was the menu planner of regular diets
- who was responsible for planning modified diet menus
- how the menus were planned
- type of regular diet menu
- frequency of revision of cycle menus, if used
- number of types of modified diet menus
- length of menu cycle
- time allowed to plan menus

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Rating Scales

Two rating scales were developed to evaluate each statement:

Scale A: Importance

- 1 = essential
- 2 = very important
- 3 = fairly important
- 4 = of minor or no importance

Scale B: Time consideration

- 1 = constantly
- 2 = occasionally
- 3 = at end of menu planning process
- 4 = not at all

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PRETESTING OF QUESTIONNAIRE. The preliminary questionnaire was completed by ten dietitians; only a few changes were required,

mainly in format. It was reported that Scale B was confusing because "constantly" and "occasionally" were too far apart in meaning and that a rating between the two was needed. The final Scale B for evaluating each competency descriptor was:

Scale B: Time consideration

- 1 = constantly
- 2 = frequently
- 3 = occasionally
- 4 = not at all

COMPETENCY STATEMENTS. The competency statements and related sub-competencies were:

Competency statement No. 1: Plans menus incorporating the following principles:

- 1.1. Adequate nutritional content
- 1.2. Color and shape
- 1.3. Texture
- 1.4. Variety

Competency statement No. 2: Plans menus which conform to:

- 2.1. Budget and/or cost requirements
- 2.2. Equipment requirements
- 2.3. Time requirements
- 2.4. Personnel requirements

Competency statement No. 3: Plans institutional menus incorporating:

- 3.1. Special nutritional requirements
- 3.2. Individual preference requirements
- 3.3. Group preference requirements

Competency statement No. 4: Analyzes menus for:

- 4.1. Nutritional content
- 4.2. Cost
- 4.3. Client acceptance
- 4.4. Modification possibilities

Competency statement No. 5: Uses effective techniques for:

- 5.1. Merchandising menu items

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For validation, the competency statements were evaluated by a randomly selected, nationwide sample of administrative and generalist hospital dietitians (Phase III). The intent was to judge the relative importance of the descriptors and the need to refine any of the statements. This validation step was essential to the competency development because of the often-voiced concern for the need to combine the expertise of educators and practitioners. Also, an objective was to determine differences in dietetic practice in relation to years in the profession. (3:643-644)

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THE INSTRUMENT. The instrument consisted of five competency statements with related sub-competencies and descriptor items. The practitioners were asked to rate the descriptors as to importance and time consideration according to their own experiences. They were instructed to rate the value or importance which the particular activity had for that respondent, and the frequency with which the practitioner would consider each activity.

COMPUTATION OF SCORES. Importance and time consideration scores were computed for each descriptor, sub-competency, and total competency. In computing the descriptor scores, the coding on the importance and time consideration scales was reversed to make the scores compatible with the concept being measured; thus, a higher score indicated greater importance or more time consideration. To obtain the sub-competency score, scores for descriptors of a sub-competency area were added and the sum divided by the number of descriptors. To obtain the competency score, scores for the descriptors of a competency were added and divided by the total number of descriptors.

A priority score was devised to rationalize the importance and time consideration scores. This method was selected from other common approaches at the suggestion of an educational research consultant. The priority score provided a unique way of considering both ratings simultaneously in a value judgment. The educational consultant suggested the original grid for assigning weighted scores, which was evaluated by a panel of dietitians.

In Table 1, the final grid used for determining the priority scores is shown. The importance scale is the abscissa and the time consideration scale is the ordinate. The weighting scale for the elements is indicated below the grid. Descriptor priority scores were used to compute the sub-competency and total competency scores.

Table 1. Priority score grid

time consideration category	importance category			
	essential	very important	fairly important	not important
constantly	I*	II	III	IV
frequently	I	II	III	IV
occasionally	I	II	IV	V
not at all	V	V	V	V

* Weighted scores: I = 4, II = 3, III = 2, IV = 1, V = 0.

Source: (4)

ANALYSIS OF SCORES BY LEVELS OF PRACTICE. One-way analysis of variance was used to study the importance, time consideration, and priority mean scores among the levels of practice for each descriptor, sub-competency, and total competency (51). Three levels of practice were defined: Five years or less, six to fifteen years, and over fifteen years. The least significant difference procedure was used to determine differences among groups. A two-way analysis of variance with repeated measures was used to study the affective and cognitive domain priority scores for each competency by level of practice (52, 53). (4:646-647)

RESULTS AND DISCUSSION

Characteristics of the Sample

Table 2 contains data from the Morales research (5). The largest number of respondents (75.2 per cent) was employed in general medical surgical hospitals and most (72.5 per cent) were in institutions that provided short term care. The majority of practitioners (91.2 per cent) was employed in institutions with 100 or more beds. The greatest number (33.3 per cent) of dietitians served on a staff of 1 or 2. Most of the respondent dietitians (66.9 per cent) were in administration and 34.8 per cent of the total were directors. The largest percentage of dietitians (41.1 per cent) had 15 or more years in practice as ADA members. Practically all (99.8 per cent) of the respondents were registered dietitians. The employing hospitals operated mainly their own foodservice (88.8 per cent).

Menu Planning Practices

Tables 3 and 4 indicate the responsibility for menu planning and the menu planning practices respectively. Regular diet menus were planned mostly by a team of dietitians (55.6 per cent), and the same was true for modified diet menus (57.7 per cent). The majority of dietitians (38.7 per cent) had no responsibility for planning personnel menus. The number of dietitians who planned personnel menus with others (36.0 per cent) was almost as high.

Table 2: Demographic profile of respondents

items	N ¹	%
type of hospital		
general medical surgical	303	75.2
psychiatric	35	8.7
children's general	2	0.5
nursing home	16	4.0
combination	13	3.2
other	34	8.4
type of care		
long term care	63	15.9
short term care	287	72.5
both	46	11.6
bed size of institution		
40 or less	10	2.5
50 to 99	25	6.3
100 to 199	66	16.5
200 to 299	62	15.5
300 to 399	63	15.7
400 to 499	60	15.0
500 or more	114	28.5
number of dietitians on staff		
1 to 2	130	33.3
3 to 5	116	29.7
6 to 9	78	20.0
10 or more	66	16.9
present position		
director	140	34.8
assistant director	67	16.7
administrative dietitian	62	15.4
production dietitian	9	2.2
therapeutic	67	16.7
other	66	14.2

¹Total N varies from 390 to 411 because of non-responses on some items.

Table 2: (cont.)

items	N	%
years in practice as ADA member		
1 or less	2	0.5
2 to 5	86	21.6
6 to 15	131	32.8
15 or more	164	41.1
years not designated	16	4.0
registered dietitian		
yes	395	97.8
no	9	2.2
operation of foodservice		
hospital	358	88.8
food contracting company	43	10.7
other	2	0.5

Table 3: Responsibility for menu planning

item	N ¹	%
are you the menu planner for regular diets		
yes, alone	108	26.8
yes, with others	224	55.6
no	71	17.6
are you the menu planner for modified diets		
yes, alone	95	23.6
yes, with others	232	57.7
both alone and with others	2	0.5
no	73	18.2
are you the menu planner for personnel menus		
yes, alone	99	24.7
yes, with others	144	36.0
both alone and with others	2	0.5
no	155	38.7

¹Total N varies from 390 to 411 because of non-responses on some items.

Table 4: Menu planning practice

item	N ¹	%
how do you plan a new set of menus		
adapt old menus	173	44.5
prepare new menus	136	35.0
both old and new menus	54	13.9
other	26	6.7
type of regular diet menu currently used		
selective cycle	243	60.7
selective noncycle	6	1.5
nonselective cycle	81	20.2
nonselective noncycle	7	1.7
selective/nonselective cycle	56	14.0
other	7	1.7
if cycle menu is used, how often are they revised		
1 per year	94	25.2
2 per year	75	20.1
3 per year	31	8.3
4 per year	62	16.6
2 to 5 years	44	11.8
other	67	18.0
length of menu cycle, if used		
one day	7	1.8
one week	29	7.4
two weeks	72	18.4
three weeks	100	25.5
four weeks	59	15.1
five weeks	66	16.8
other	59	15.1

¹Total N varies from 390 to 411 because of non-responses on some items.

The largest number of practitioners (44.5 per cent) adapted old menus in planning new ones. The majority of the respondents (60.7 per cent) used regular selective cycle menus. The majority of the dietitians (25.2 per cent) revised cycle menus once a year. Most dietitians (25.5 per cent) used a cycle of three weeks.

Menu Planning Competencies and Subcompetencies

Fifteen variables from the data collected by Morales et al. (3, 4), as listed in the section on methods, were analyzed using analysis of variance (54) for five menu planning competencies and related subcompetencies (refer to Table 5 for Computation of Scores). The least squares mean scores for the variables with significant differences ($P \leq .05$) among groups in relation to the subcompetencies and overall competencies on importance, time consideration, and priority rating scales are presented in Tables 6 to 10. If group size was less than ten (refer to Tables 2-4 on demographic data), data were omitted from tables and discussion. The following variables therefore, were deleted:

<u>variable</u>	<u>response category deleted</u>
type of institution	children's general
present position	production dietitian
years in practice as ADA member	1 or less
are you the menu planner for modified diets	both alone and with others
are you the menu planner for personnel menus	both alone and with others
length of menu cycle	one day

The variable "registered dietitian" was eliminated because only nine dietitians were not registered and no valid comparisons could be made.

Table 5: Computation scheme for criterion measures

scores	computation of score
<u>importance:</u>	
subcompetency score	$\frac{\Sigma \text{ of subcompetency importance descriptor scores}}{N^1}$
competency score	$\frac{\Sigma \text{ of competency importance descriptor scores}}{N}$
<u>time consideration:</u>	
subcompetency score	$\frac{\Sigma \text{ of subcompetency time consideration descriptor scores}}{N}$
competency score	$\frac{\Sigma \text{ of competency time consideration descriptor scores}}{N}$
<u>priority:</u>	
subcompetency score	$\frac{\Sigma \text{ of subcompetency priority descriptor scores}^2}{N}$
competency score	$\frac{\Sigma \text{ of competency priority descriptor scores}}{N}$

¹N = number of descriptors.

²Derivation of descriptor priority scores shown in Table 1.

The same situation occurred in the "type of regular diet menu currently used" because only six dietitians used selective noncycle menus and seven had nonselective noncycle or other types of menus. Supplementary information on analysis is presented in Table 13 in Appendix B.

Competency Statement 1

Five variables were statistically significant for subcompetency 1.1, "plans menus incorporating adequate nutritional content"; the least square means ranged from 2.91 to 3.91 in the importance and priority ratings (Table 6). The respondents in smaller institutions (under 100 beds) had higher mean scores than did those in larger institutions (400 beds or over). The dietitians with 15 or more years of practice rated the subcompetency higher than did the dietitians with less experience. The mean scores were higher for the dietitians who planned menus with other staff members than did those who planned menus alone. The respondents who had no responsibility for personnel menus attached less importance to the subcompetency than did their colleagues who planned personnel menus either alone or with others. The practitioners who planned modified menus both alone and with others placed higher priority on subcompetency 1.1, "adequate nutritional content," than did those without the responsibility.

Subcompetency 1.2, "plans menus incorporating color and shape," was given more importance and higher priority ratings by the dietitians employed in facilities providing both short and long term care than did the respondents from either short or long term care facilities. Higher priority was placed on the subcompetency when there were 10 or more dietitians on staff than when there were fewer dietitians; however, in

Table 6: Analysis of variance of effects of selected demographic variables¹ on menu planning competency
1 and related subcompetencies ($P < .05$)

subcompetency or competency	variable	least squares mean scores ²		
		importance ³	time consideration ⁴	priority ⁵
competency statement 1				
plans menus incorporating the following principles:				
1.1 adequate nutritional content				
	bed size			
	49 or less	3.39		3.52
	50 to 99	3.36		3.48
	100 to 199	3.20		3.26
	200 to 299	3.19		3.24
	300 to 399	3.33		3.44
	400 to 499	3.11		3.10
	500+	3.08		3.10

¹Data not shown for groups with $N < 10$ (refer to Tables 2-4 for data on demographic characteristics).

²Mean scores adjusted for effects of the 15 variables used in the model; means show relative difference among groups and may exceed the range of the scale because of adjustment for the model.

³Importance Scale: 1 = of minor or no importance, 2 = fairly important, 3 = very important, 4 = essential. (See Table 5 for computation of scores.)

⁴Time Consideration Scale: 1 = not at all, 2 = occasionally, 3 = frequently, 4 = constantly. (See Table 5 for computation of scores.)

⁵Priority Scale: Priority scores were derived from importance and time consideration ratings. (See Tables 1 and 5 for weighting and computation of scores.)

Table 6: (cont.)

subcompetency or competency	variable	least squares mean scores		
		importance	time consideration	priority
	years of practice			
	2 to 5	3.03		2.97
	6 to 15	3.14		3.19
	15 or more	3.26		3.31
	years not designated	3.11		3.20
	responsibility for planning			
	regular diet menus			
	yes, alone	3.14		3.13
	yes, with others	3.35		3.46
	none	3.22		3.33
	responsibility for personnel			
	menus			
	yes, alone	3.32		
	yes, with others	3.27		
	none	2.91		
	responsibility for modified			
	menus			
	yes, alone			3.29
	yes, with others			3.08
	none			2.94

Table 6: (cont.)

subcompetency or competency	variable	least squares mean scores		
		importance	time consideration	priority
1.2 color and shape	short/long term care			
	short term care	3.29		3.36
	long term care	3.14		3.17
	both short and long term	3.47		3.63
	number of dietitians on staff			
1.4 variety	1 to 2			3.44
	3 to 5			3.23
	6 to 9			3.25
	10 or more			3.63
	responsibility for planning			
overall competency 1	regular diet menus			
	yes, alone	3.93	3.98	3.89
	yes, with others	3.94	4.02	3.92
	none	3.71	3.66	3.59
	short/long term care			
overall competency 1	short term care			3.67
	long term care			3.74
	both short and long term care			3.99
	short/long term care			
	short term care	3.48		
overall competency 1	long term care	3.49		
	both short and long term care	3.66		

Table 6: (cont.)

subcompetency or competency	variable	least squares mean scores			
		importance	time consideration	priority	
	years of practice				
	2 to 5		3.30		
	6 to 15		3.50		
	15 or more		3.50		
	years not designated		3.51		

institutions with 1 to 2 dietitians, the priority score was relatively higher than in institutions with 3 to 9 dietitians.

Subcompetency 1.3 was concerned with planning menus incorporating texture. Ratings on this subcompetency did not vary in relation to any of the variables studied.

The dietitians responsible for menu planning with other staff members considered "variety," subcompetency 1.4, more important and requiring more time consideration and higher priority than did the other groups. The respondents from institutions providing both short and long term care had higher priority mean scores on subcompetency 1.4 than did the other groups.

Overall competency 1 was considered most important by the practitioners employed in hospitals with both short and long term care. The dietitians with 5 years or less practice considered the overall competency as requiring less time than did the more experienced dietitians.

Competency Statement 2

Subcompetency 2.1, "plans menus which conform to budget and/or cost requirements," was given higher importance and priority ratings by the directors and associate or assistant directors than by the other groups. The more experienced practitioners considered the subcompetency as requiring more frequent time consideration while the less experienced considered it less frequently.

The directors, associate or assistant directors, and administrative dietitians considered subcompetency 2.2, "equipment requirements," as requiring more time than did the other classifications. These three groups of administrative dietitians also attached more importance to

Table 7: Analysis of variance of effects of selected demographic variables on menu planning competency
2 and related subcompetencies¹

subcompetency or competency	variable	least squares mean scores		
		importance	time consideration	priority
competency statement 2				
plans menus which conform to:				
2.1 budget and/or cost requirements				
	present position			
	director	4.24		4.33
	associate/assistant director	4.13		4.14
	administrative dietitian	3.89		3.89
	therapeutic dietitian	3.91		3.94
	other	4.00		4.01
	years of practice			
	2 to 5		3.67	
	6 to 15		3.95	
	15 or more		4.00	
	years not designated		4.14	
2.2 equipment requirements				
	present position			
	director		4.04	
	associate/assistant director		3.89	
	administrative dietitian		3.87	
	therapeutic dietitian		3.70	
	other		3.68	

¹Refer to Table 6 for explanatory footnotes.

Table 7: (cont.)

subcompetency or competency	variable	least squares mean scores			
		importance	time consideration	priority	
2.3 time requirements					
	present position				
	director	3.77			
	associate/assistant director	3.85			
	administrative dietitian	3.76			
	therapeutic dietitian	3.55			
	other	3.59			
2.4 personnel requirements					
	type of hospital				
	general medical surgical	3.22	3.51	3.19	
	psychiatric	3.15	3.48	3.20	
	nursing home	3.84	4.17	4.12	
	combination	3.28	3.17	3.14	
	other	3.52	3.70	3.51	
	present position				
	director	3.90			
	associate/assistant director	3.85			
	administrative dietitian	3.75			
	therapeutic dietitian	3.64			
	other	3.67			
overall competency 2					
	years of practice				
	2 to 5			3.56	
	6 to 15			3.77	
	15 or more			3.83	
	years not designated			3.70	

subcompetency 2.3, "time requirements," in menu planning than did the other groups.

Subcompetency 2.4, "plans menus which conform to personnel requirements," was given higher importance, time consideration, and priority ratings by the respondents employed by nursing homes than by the dietitians from other types of facilities. Directors, associate/assistant directors, and administrative dietitians attached greater importance to the subcompetency than did the therapeutic and other dietitians.

Overall competency 2 was considered as requiring more frequent time consideration by the dietitians with 6 or more years of practice than by those with only 2 to 5 years of experience. This pattern of findings was similar to that of overall competency statement 1.

Competency Statement 3

More importance was placed on subcompetency 3.1, "plans institutional menus incorporating special nutritional requirements," by the practitioners responsible for personnel menus both alone and with others and by those with different responsibilities. Those with sole responsibility for personnel menu planning were least concerned about "special nutritional requirements" in menu planning as reflected by the low ratings on all three scales.

Subcompetency 3.2, "individual preference requirements," was considered most important by the dietitians employed in institutions providing both short and long term care. All groups considered "individual preferences" very important in planning institutional menus. As length of time in the profession increased, the time consideration scores increased also for subcompetency 3.2. Other variables significantly related to this

Table 8: Analysis of variance of effects of selected demographic variables on menu planning competency 3 and related subcompetencies

subcompetency or competency	variable	least squares mean scores		
		importance	time consideration	priority
competency statement 3				
plans institutional menus incorporating				
3.1 special nutritional requirements				
	responsibility for personnel menu			
	yes, alone	3.56	3.80	3.53
	yes, with others	3.70	3.94	3.70
	none	3.82	4.59	3.82
3.2 individual preference requirements				
	short/long term care			
	short term care	4.17		4.26
	long term care	4.00		3.99
	both short and long care	4.38		4.59
	years of practice			
	2 to 5		3.65	
	6 to 15		3.90	
	15 or more		4.00	
	years not designated		4.00	

¹Refer to Table 6 for explanatory footnotes.

Table 8: (cont.)

subcompetency or competency	variable	least squares mean scores		
		importance	time consideration	priority
	responsibility for planning regular diet menus			
	yes, alone		3.80	
	yes, with others		4.12	
	no		4.00	
	frequency of menu cycle revision			
	once/year		5.05	
	twice/year		3.62	
	3 times/year		3.80	
	4 times/year		3.90	
	use cycle 2 to 5 years		3.80	
	other		3.68	
	responsibility for personnel menu			
	yes, alone			3.94
	yes, with other staff members			3.85
	none			5.11
3.3 group preference requirements	bed size			
	49 or less		4.06	
	50 to 99		3.51	
	100 to 199		3.37	
	200 to 299		3.27	
	300 to 399		3.50	
	400 to 499		3.26	
	500+		3.21	

Table 8: (cont.)

subcompetency or competency	variable	least squares mean scores			
		importance	time consideration	priority	
overall competency 3	number of dietitians				
	1 to 2		3.32		
	3 to 5		3.37		
	6 to 9		3.42		
	10 or more		3.71		
	years of practice				
	2 to 5		3.09		
	6 to 15		3.81		
	15 or more		3.40		
	years not designated		3.54		
	short/long term care				
	short term care	3.84		3.78	
	long term care	3.72		3.61	
	both long and short term care	3.98		3.98	
	years of practice				
	2 to 5		3.58		
	6 to 15		3.80		
	15 or more		3.88		
	years not designated		3.83		
	responsibility for planning				
	regular diet menus				
	yes, alone		3.79		
	yes, with other staff members		3.95		
	none		3.77		

subcompetency were: responsibility for menu planning and frequency of menu cycle revision. Time consideration scores were highest for dietitians who were responsible for menu planning with other staff members and those employed in institutions in which menu cycle revision occurred once a year. The mean score for the practitioners who planned personnel menus alone placed the highest priority on "individual preference requirements" in menu planning.

The variables that were significant for subcompetency 3.3, "group preference requirements," in menu planning for institutions were on time consideration ratings. The dietitians employed in the smallest institutions gave more time consideration to the subcompetency than did those in larger institutions. The ratings increased in relation to the number of dietitians on staff. The less experienced dietitians considered "group preference requirements" as requiring less time than did the more experienced practitioners.

Overall competency 3 was given higher importance and priority scores by the respondents employed in health care facilities with both long and short term care. The practitioners with 2 to 5 years of experience had lower mean scores on time consideration ratings than did those with more than 5 years. The respondents responsible for menu planning with other staff members considered competency 3 as requiring more time consideration than did the other dietitians.

Competency Statement 4

For subcompetency 4.1, "analyzes menus for nutritional content," the least squares means were higher on all three ratings for the dietitians who planned menus with other staff members. Less time

Table 9: Analysis of variance of effects of selected demographic variables on menu planning competency 4 and related subcompetencies¹

subcompetency or competency	variable	least squares mean scores		
		importance	time consideration	priority
competency statement 4				
analyzes menus for:				
4.1 nutritional content				
	responsibility for planning			
	regular diet menus			
	yes, alone	3.33	3.54	3.53
	yes, with other staff members	3.61	3.86	3.92
	none	3.37	3.35	3.36
	number of dietitians on staff			
	1 to 2		3.41	3.33
	3 to 5		3.68	3.71
	6 to 9		3.56	3.63
	10 or more		3.69	3.75
	years of practice			
	2 to 5		3.50	
	6 to 15		3.57	
	15 or more		3.82	
	years not designated		3.31	

¹Refer to Table 6 for explanatory footnotes.

Table 9: (cont.)

subcompetency or competency	variable	least squares mean scores			
		importance	time consideration	priority	
4.2 cost	present position				
	director	4.20	4.17	4.38	
	associate/assistant director	4.11	3.95	4.24	
	administrative dietitian	4.04	3.95	4.19	
	therapeutic dietitian	3.90	3.91	3.95	
	other	3.88	3.78	3.94	
	years of practice				
	2 to 5		3.58		
	6 to 15		3.78		
	15 or more		3.90		
4.3 client acceptance	years not designated		4.06		
	short/long term care				
	short term care	3.54	3.39	3.57	
	long term care	3.30	3.12	3.09	
	both short and long term care	3.81	3.61	3.84	
	responsibility for personnel menus				
	yes, alone			3.11	
	yes, with other staff members			3.27	
	none			3.52	

Table 9: (cont.)

subcompetency or competency	variable	least squares mean scores			
		importance	time consideration	priority	
4.4 modification possibilities	responsibility for planning				
	regular diet menus				
	yes, alone		3.30		
	yes, with other staff members		3.52		
	none		3.30		
overall competency 4	short/long term care				
	short term care		3.55		
	long term care		3.62		
	both short and long term care		3.84		
	short/long term care				
	short term care	3.64			3.73
	long term care	3.51			3.55
	both short and long term care	3.80			3.91
	responsibility for planning				
	regular diet menus				
	yes, alone	3.63			3.59
	yes, with other staff members	3.76			3.78
	none	3.56			3.49

Table 9: (cont.)

subcompetency or competency	variable	least squares mean scores			
		importance	consideration	time	priority
	years of practice				
	2 to 5			3.43	
	6 to 15			3.56	
	15 or more			3.69	
	years not designated			3.59	

consideration and priority were given to the subcompetency when there were only one or two dietitians on staff than when the hospital employed a larger staff of dietitians. The respondents with 15 or more years of practice gave more time consideration to the subcompetency than did the other groups. Time consideration ratings also were higher for practitioners who planned menus with other staff members.

Subcompetency 4.2, "analyze menus for cost," was rated highest on all three rating scales by the three classifications of administrative dietitians (directors, associate/assistant directors, and administrative dietitians). As years of practice increased, time consideration scores also increased for this subcompetency.

The practitioners employed in institutions with both short and long term care had the highest mean scores on the three rating scales for subcompetency 4.3, "analyzes menus for client acceptance." Priority mean scores were lowest for the subcompetency by the respondents who planned personnel menus alone, which was a surprising finding. The practitioners who planned menus with other staff members gave higher time consideration ratings to the subcompetency than did the other groups.

Higher time consideration ratings were given to subcompetency 4.4, "analyzes menus for modification possibilities," by the respondents who were on staffs of facilities with both short and long term care.

Type of care provided, responsibility for menu planning, and years of practice were significant variables on overall competency statement 4. The practitioners from short and long term care facilities gave highest importance and priority ratings to overall competency 4. The dietitians who planned menus with other staff members rated the competency higher on importance and time consideration than did their colleagues without such

responsibility. The pattern of increased time consideration and longer practice in the profession was observed on this competency as was true for overall competencies 1, 2, and 3.

Competency Statement 5

Competency 5, "uses effective techniques for merchandising menu items," was given a higher rating by the directors and associate/assistant directors on the three rating scales than by the staff dietitians. The dietitians from institutions providing both short and long term care considered merchandizing most frequent in menu planning. The practitioners who planned menus with other staff members had higher time consideration scores than did other respondents.

Table 10: Analysis of variance of effects of selected demographic variables on menu planning competency 5 and related subcompetencies

subcompetency or competency	variable	least squares mean scores			
		importance	time consideration	priority	
competency statement 5					
uses effective techniques:					
5.1 for merchandising menu items					
	present position				
	director	3.84	4.13		4.00
	associate/assistant director	3.78	3.94		3.89
	administrative dietitian	3.62	3.91		3.72
	therapeutic dietitian	3.53	3.88		3.62
	other	3.60	3.78		3.62
	short/long term care				
	short term care		3.80		
	long term care		3.86		
	both short and long term care		4.08		
	responsibility for planning				
	regular diet menus				3.89
	yes, alone				4.05
	yes, with other staff members				3.79
	none				

¹Refer to Table 6 for explanatory footnotes.

SUMMARY AND CONCLUSIONS

This study was based on the recommendation of Morales et al. (4) that research scores from their study should be analyzed by criteria other than levels of practice. In the research reported in this paper, the Morales data were reanalyzed using analysis of variance with the purpose of identifying the effects of fifteen selected variables on menu planning competencies in dietetic practice.

The instrument used in collecting the data consisted of five competency statements, sixteen subcompetencies, and ninety-two descriptor items. The descriptors were rated using three scales: importance, time consideration, and priority. Competency and subcompetency scores were computed from the descriptor scores for each of the three scales.

The results from this study are summarized in Tables 11 and 12. These tables show the variables that were statistically significant for the subcompetencies and overall competencies on the three rating scales.

Importance ratings for several subcompetencies were influenced most by "present position" (Table 11). Type of responsibility for planning regular diet menus, type of present position, and type of care provided by an institution (short/long term) also affected several subcompetencies. "Years of practice" had the greatest influence on menu planning subcompetencies in relation to time consideration ratings.

Whether the institutions provided short or long term care had the greatest effect on importance ratings for competencies 1, 3, and 4 (Table 12). On the time consideration rating, "years of practice" had the

Table 11: Summary of subcompetencies with significant differences on the three rating scales

variable	subcompetency numbers			priority rating
	importance rating	time consideration rating		
bed size	1.1	3.3		1.1
years of practice	1.1	2.1, 3.2, 3.3, 4.1, 4.2		1.1
responsibility for planning regular diet menus	1.1, 1.4, 4.1	1.4, 3.2, 4.1, 4.3		1.1, 1.4, 4.1
responsibility for personnel menu	1.1, 3.1	3.1		3.1, 3.2, 4.3
responsibility for modified menu				1.1
short/long term care	1.2, 3.2, 4.3	4.3, 4.4		1.2, 1.4, 3.2, 4.3
number of dietitians on staff		3.3, 4.1		1.2, 4.1
present positions	2.1, 2.3, 2.4, 4.2	2.2, 4.2		2.1, 4.2
type of institution	2.4	2.4		2.4
frequency of menu cycle revision		3.2		

Table 12: Summary of overall competencies with significant differences on the three rating scales

variable	competency numbers		
	importance rating	time consideration rating	priority rating
short/long term care	1, 3, 4	5	3, 4
years of practice		1, 2, 3, 4	
responsibility for planning regular diet menus	4	3, 4, 5	
present position	5	5	5

greatest effect on all competencies except statement 5. "Type of position" affected ratings on all three scales for competency statement 5.

The findings showed that "years of practice" had an important effect on menu planning in relation to frequency of time consideration. This confirms the results of Morales et al. (4) that the more experienced practitioners considered the competency statements as requiring more frequent time consideration than did the less experienced dietitians. However, other variables had impact as well, such as "responsibility for planning regular diet menus," "type of present position," and "type of care provided by an institution."

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APPENDIXES

APPENDIX A
Research Instrument



KANSAS STATE UNIVERSITY

Department of Dietetics, Restaurant
and Institutional ManagementJustin Hall
Manhattan, Kansas 66505
Phone: 913 532-5521-2COMPETENCY-BASED MENU PLANNING SURVEYI. GENERAL INFORMATION:

1. TYPE OF HOSPITAL: (CHECK ONE)
 - ☐ (1) General Medical Surgical
 - ☐ (2) Psychiatric
 - ☐ (3) Children's General
 - ☐ (4) Other Specialty _____
2. IS YOUR HOSPITAL:
 - ☐ (1) Short-Term Care
 - ☐ (2) Long-Term Care
3. BED SIZE OF INSTITUTION: (CHECK ONE)
 - ☐ (1) 49 or less
 - ☐ (2) 50-99
 - ☐ (3) 100-199
 - ☐ (4) 200-299
 - ☐ (5) 300-399
 - ☐ (6) 400-499
 - ☐ (7) 500+
4. NUMBER OF DIETITIANS ON STAFF _____
5. YOUR POSITION TITLE: (CHECK ONE)
 - ☐ (1) Director
 - ☐ (2) Associate/Assistant Director
 - ☐ (3) Administrative Dietitian
 - ☐ (4) Production Dietitian
 - ☐ (5) Other _____
6. NUMBER OF YEARS IN DIETETIC PRACTICE
AS A.O.A. MEMBER: (CHECK ONE)
 - ☐ (1) 1 or less
 - ☐ (2) 2-5
 - ☐ (3) Other _____
7. ARE YOU A REGISTERED DIETITIAN (R.O.)?
 - ☐ (1) Yes
 - ☐ (2) No
8. IS THE FOODSERVICE OPERATED BY:
 - ☐ (1) The Hospital
 - ☐ (2) Food Contracting Company
9. ARE YOU THE MENU PLANNER FOR REGULAR OIETS?
 - ☐ (1) Yes, Alone
 - ☐ (2) Yes, with other staff members
 - ☐ (3) No
10. ARE YOU RESPONSIBLE FOR PLANNING
MODIFIED OIET MENUS?
 - ☐ (1) Yes, Alone
 - ☐ (2) Yes, with other staff members
 - ☐ (3) No
11. ARE YOU RESPONSIBLE FOR PLANNING
PERSONNEL MENUS?
 - ☐ (1) Yes, Alone
 - ☐ (2) Yes, with other staff members
 - ☐ (3) No
12. HOW DO YOU PLAN A NEW SET OF MENUS?
 - ☐ (1) Adapt old menus
 - ☐ (2) Prepare new menus
 - ☐ (3) Other _____
13. TYPE OF REGULAR OIET MENU CURRENTLY USED:
(CHECK ONE)
 - Selective
 - ☐ (1) Cycle
 - ☐ (2) Noncycle
 - Nonselective
 - ☐ (3) Cycle
 - ☐ (4) Noncycle
 - ☐ (5) Other _____
14. IF CYCLE MENUS ARE USED, HOW OFTEN ARE
THEY REVISED? _____
15. HOW MANY TYPES OF MODIFIED OIET MENUS
ARE USED IN YOUR HOSPITAL? (FOR EXAMPLE:
SOFT, DIABETIC OR SODIUM RESTRICTED)
 - ☐ (1) Number of Selective
 - ☐ (2) Number of Nonselective
16. LENGTH OF MENU CYCLE, IF USED: (CHECK
ONE)
 - ☐ (1) 1 day (Restaurant Type)
 - ☐ (2) 1 week
 - ☐ (3) 2 weeks
 - ☐ (4) 3 weeks
 - ☐ (5) 4 weeks
 - ☐ (6) 5 weeks
 - ☐ (7) Other _____

(over)

II. COMPETENCY-BASED MENU PLANNING ACTIVITY STATEMENTS

This study involves the competencies required of dietetic practitioners, at varying levels of experience, in the area of menu planning. Each of the five broad menu planning competency statements derived from a previous study have been divided into segments. Under each segment there are activities which you will rate as to importance and time consideration. The importance scale (Scale A) indicates the value that the activity has for you. The time consideration scale (Scale B) indicates the frequency with which you would consider each activity during the menu planning process. Please note that the two scales may not always seem appropriate for evaluating the activity statements. However, for the accuracy of the study, complete all statements as best you can. Also, in order to respond to each activity in its proper context, it may be necessary for you occasionally to refer back to the competency statement.

Scale A IMPORTANCE

- 1 = Essential
- 2 = Very Important
- 3 = Fairly Important
- 4 = Of minor or no importance

Scale B TIME CONSIDERATION

- 1 = Constantly
- 2 = Frequently
- 3 = Occasionally
- 4 = Not at all

EXAMPLE: Circle one number in each of the two scales for each activity statement:

Competency Statement 1 - PLANS MENUS INCORPORATING THE FOLLOWING PRINCIPLES:

1.1 Adequate Nutritional Content:

- a. Utilizes the four food groups

Scale A

Importance
1 ② 3 4

Scale B

Time Consideration
1 ② 3 4

-3-

Scale A IMPORTANCE

- 1 = Essential
 2 = Very Important
 3 = Fairly Important
 4 = Of minor or no importance

Scale B TIME CONSIDERATION

- 1 = Constantly
 2 = Frequently
 3 = Occasionally
 4 = Not at all

Competency Statement 1 - PLANS MENUS INCORPORATING THE FOLLOWING PRINCIPLES:

	Scale A	Scale B
	Importance	Time Consideration
1.1 Adequate Nutritional Content:		
a. Utilizes the four food groups	1 2 3 4	1 2 3 4
b. Evaluates the RDA's in the life cycle	1 2 3 4	1 2 3 4
c. Values nutritional adequacy	1 2 3 4	1 2 3 4
d. Demonstrates empathy and interest in the client	1 2 3 4	1 2 3 4
e. Coordinates nutritional data to meet standards	1 2 3 4	1 2 3 4
f. Selects proper ingredients, recipes and cooking methods	1 2 3 4	1 2 3 4
1.2 Color and Shape:		
a. Applies principles of art including balance, contrast, etc.	1 2 3 4	1 2 3 4
b. Chooses preparation methods to meet artistic principles	1 2 3 4	1 2 3 4
c. Recognizes client aesthetic expectations	1 2 3 4	1 2 3 4
d. Values the importance of color and shape balance	1 2 3 4	1 2 3 4
e. Correlates food value and aesthetic presentation to client	1 2 3 4	1 2 3 4
1.3 Texture:		
a. Accepts the importance of texture variety	1 2 3 4	1 2 3 4
b. Analyzes the effect of preparation methods on texture	1 2 3 4	1 2 3 4
c. Chooses preparation methods to give texture variety	1 2 3 4	1 2 3 4
d. Recognizes clients' physical limitations, eg. poor dentures	1 2 3 4	1 2 3 4
e. Modifies texture of food to satisfy client expectations	1 2 3 4	1 2 3 4
1.4 Variety:		
a. Selects various foods, recipes and serving temperatures	1 2 3 4	1 2 3 4
b. Appreciates variety in nutritionally adequate menus	1 2 3 4	1 2 3 4
c. Accepts the importance of variety	1 2 3 4	1 2 3 4
d. Appreciates the client's need for variety	1 2 3 4	1 2 3 4
e. Utilizes standardized recipes to achieve variety	1 2 3 4	1 2 3 4
f. Develops client feedback	1 2 3 4	1 2 3 4

(over)

-4-

Scale A IMPORTANCE

- 1 = Essential
 2 = Very Important
 3 = Fairly Important
 4 = Of minor or no importance

Scale B TIME CONSIDERATION

- 1 = Constantly
 2 = Frequently
 3 = Occasionally
 4 = Not at all

Competency Statement 2 - PLANS MENUS WHICH CONFORM TO:

	Scale A <u>Importance</u>	Scale B <u>Time Consideration</u>
2.1 Budget and/or Cost Requirements:		
a. Realizes factors of cost control (recipes, portioning, etc.)	1 2 3 4	1 2 3 4
b. Accepts the importance of budgets and cost control	1 2 3 4	1 2 3 4
c. Accepts the concept of financial accountability	1 2 3 4	1 2 3 4
d. Maintains adequate records for financial control	1 2 3 4	1 2 3 4
e. Produces menus within the budgetary constraints	1 2 3 4	1 2 3 4
f. Prepares a defensible budget	1 2 3 4	1 2 3 4
2.2 Equipment Requirements:		
a. Recognizes the functions of each piece of equipment	1 2 3 4	1 2 3 4
b. Writes menus within equipment constraints	1 2 3 4	1 2 3 4
c. Selects best equipment to prepare menu items	1 2 3 4	1 2 3 4
d. Indicates willingness to adapt menus to available equipment	1 2 3 4	1 2 3 4
e. Values the effect new equipment has on menu planning	1 2 3 4	1 2 3 4
2.3 Time Requirements:		
a. Accepts the importance of time constraints	1 2 3 4	1 2 3 4
b. Realizes time element in production and service	1 2 3 4	1 2 3 4
c. Computes preparation time for each standardized recipe	1 2 3 4	1 2 3 4
d. Adapts menu to preparation time requirements	1 2 3 4	1 2 3 4
e. Indicates willingness to modify menus for time consideration	1 2 3 4	1 2 3 4
f. Applies production and personnel scheduling techniques	1 2 3 4	1 2 3 4
2.4 Personnel Requirements:		
a. Identifies skills required for each menu task	1 2 3 4	1 2 3 4
b. Adapts menu to meet personnel capabilities	1 2 3 4	1 2 3 4
c. Analyzes menu for number of employees required	1 2 3 4	1 2 3 4
d. Recognizes personnel abilities and limitations	1 2 3 4	1 2 3 4
e. Indicates willingness to change menu for personnel reasons	1 2 3 4	1 2 3 4
f. Practices management functions (plan, organize, etc.)	1 2 3 4	1 2 3 4

-5-

Scale A IMPORTANCE

- 1 = Essential
 2 = Very Important
 3 = Fairly Important
 4 = Of minor or no importance

Scale B TIME CONSIDERATION

- 1 = Constantly
 2 = Frequently
 3 = Occasionally
 4 = Not at all

Competency Statement 3 - PLANS INSTITUTIONAL MENUS INCORPORATING:

	Scale A	Scale B
	Importance	Time Consideration
3.1 <u>Special Nutritional Requirements:</u>		
a. Recognizes that diet modifications influence menu planning	1 2 3 4	1 2 3 4
b. Accepts the importance of modified diets	1 2 3 4	1 2 3 4
c. Incorporates special nutritional needs in planning menus	1 2 3 4	1 2 3 4
d. Modifies recipes for special diet purpose	1 2 3 4	1 2 3 4
e. Applies menu planning techniques in modifying menus	1 2 3 4	1 2 3 4
f. Demonstrates empathy and consideration for the client	1 2 3 4	1 2 3 4
3.2 <u>Individual Preference Requirements:</u>		
a. Analyzes individual client profile (age, ethnic, etc.)	1 2 3 4	1 2 3 4
b. Applies research methods for estimating acceptance	1 2 3 4	1 2 3 4
c. Accepts individual preference differences	1 2 3 4	1 2 3 4
d. Recognizes effect of hospitalization on client behavior	1 2 3 4	1 2 3 4
e. Adapts menu to diet order	1 2 3 4	1 2 3 4
f. Utilizes communication skills, especially interviewing	1 2 3 4	1 2 3 4
3.3 <u>Group Preference Requirements:</u>		
a. Analyzes group client profiles (age, ethnic, etc.)	1 2 3 4	1 2 3 4
b. Recognizes group economic condition (welfare, etc.)	1 2 3 4	1 2 3 4
c. Accepts group preference differences	1 2 3 4	1 2 3 4
d. Responds to group related new products (ethnic specialties)	1 2 3 4	1 2 3 4
e. Incorporates group client profile information into menus	1 2 3 4	1 2 3 4
f. Utilizes client complaints in menu changing decisions	1 2 3 4	1 2 3 4

(over)

Scale A IMPORTANCE

- 1 = Essential
 2 = Very Important
 3 = Fairly Important
 4 = Of minor or no importance

Scale B TIME CONSIDERATION

- 1 = Constantly
 2 = Frequently
 3 = Occasionally
 4 = Not at all

Competency Statement 4 - ANALYZES MENUS FOR:

	Scale A	Scale B
	<u>Importance</u>	<u>Time Consideration</u>
4.1 Nutritional Content:		
a. Applies evaluation tools (composition tables, RDA's, etc.)	1 2 3 4	1 2 3 4
b. Analyzes the effect of production and service methods	1 2 3 4	1 2 3 4
c. Accepts the importance of nutrient analysis	1 2 3 4	1 2 3 4
d. Indicates commitment to good nutrition	1 2 3 4	1 2 3 4
e. Recognizes need for change based on evaluation	1 2 3 4	1 2 3 4
4.2 Cost:		
a. Demonstrates basic knowledge of food costs	1 2 3 4	1 2 3 4
b. Applies cost control principles	1 2 3 4	1 2 3 4
c. Accepts the importance of controlling costs	1 2 3 4	1 2 3 4
d. Indicates willingness to adapt menu to cost constraints	1 2 3 4	1 2 3 4
e. Develops system to cost analysis (budget, costs, etc.)	1 2 3 4	1 2 3 4
f. Collects data for decision-making	1 2 3 4	1 2 3 4
4.3 Client Acceptance:		
a. Applies research methods to evaluate acceptance	1 2 3 4	1 2 3 4
b. Utilizes feedback for menu acceptance surveys	1 2 3 4	1 2 3 4
c. Accepts individual differences	1 2 3 4	1 2 3 4
d. Practices human relations skills	1 2 3 4	1 2 3 4
e. Practices communication skills	1 2 3 4	1 2 3 4
f. Adapts menu based on client profile data	1 2 3 4	1 2 3 4
4.4 Modification Possibilities:		
a. Identifies appropriate substitutions for menu items	1 2 3 4	1 2 3 4
b. Recognizes the effect of changes on the system, eg. purchasing	1 2 3 4	1 2 3 4
c. Indicates willingness to change menu	1 2 3 4	1 2 3 4
d. Demonstrates empathy for clients and personnel	1 2 3 4	1 2 3 4
e. Incorporates principles of menu planning in changing menus	1 2 3 4	1 2 3 4
f. Develops a feedback system for evaluation	1 2 3 4	1 2 3 4

-7-

Scale A IMPORTANCE

- 1 = Essential
 2 = Very Important
 3 = Fairly Important
 4 = Of minor or no importance

Scale B TIME CONSIDERATION

- 1 = Constantly
 2 = Frequently
 3 = Occasionally
 4 = Not at all

Competency Statement 5 - USES EFFECTIVE TECHNIQUES:

	<u>Scale A</u>	<u>Scale B</u>
	<u>Importance</u>	<u>Time Consideration</u>
5.1 For Merchandising Menu Items:		
a. Recognizes the factors that constitute tray attractiveness	1 2 3 4	1 2 3 4
b. Evaluates presentation of food	1 2 3 4	1 2 3 4
c. Indicates willingness to merchandise food	1 2 3 4	1 2 3 4
d. Indicates receptiveness to new ideas in food presentation	1 2 3 4	1 2 3 4
e. Incorporates creativity in coordinating food and environment	1 2 3 4	1 2 3 4
f. Adapts principles of menu planning to client acceptance	1 2 3 4	1 2 3 4

COMMENTS

APPENDIX B
Supplementary Table

Table 13: Statistical summary of analysis of variance of competency and subcompetency scores

source	d.f.	importance scores					time consideration scores					priority scores						
		1.1	1.2	1.3	1.4	comp.	subcompetency	1.1	1.2	1.3	1.4	comp.	subcompetency	1.1	1.2	1.3	1.4	comp.
typhosp	5																	
short/long care	2		*			*								*			*	
bed size	6	*												*				
no. dietitians	3														*			
position title	5																	
no. of years	4	*										*		*				
R.D.	1																	
oper. of food-service	2																	
menu planner-reg.	2	*			*					*				*			*	
mod. menu	3													*				
personnel menu	3	*																
new set menu	3																	
type reg. diet menu	4																	
cycle menu	5																	
length menu cycle	6																	
residual	280																	
mean square residual		.14	.25	.26	.18	.13	.17	.29	.32	.25	.17	.27	.52	.55	.32	.25	.67	.25

Table 13: (cont.)

source	d.f.	importance scores					time consideration scores					priority scores				
		subcompetency					subcompetency					subcompetency				
		2.1	2.2	2.3	2.4	comp.	2.1	2.2	2.3	2.4	comp.	2.1	2.2	2.3	2.4	comp.
typhosp	5				*					*						*
short/long care	2															
bed size	6															
no. dietitians	3									*						
position title	5	*		*		*		*				*				
no. of years	4							*			*					
R.D.	1							*								
oper. of food-service	2															
menu planner--reg.	2							*								
mod. menu	3															
personnel menu	3															
new set menu	3															
type reg. diet menu	4															
cycle menu	5															
length menu cycle	6															
residual	280															
mean square residual		.28	.30	.25	.34	.20	.36	.39	.34	.36	.25	.51	.60	.51	.76	.39

Table 13: (cont.)

source	d.f.	importance scores			time consideration scores			priority scores					
		3.1	3.2	3.3	comp.	subcompetency	3.1	3.2	3.3	comp.			
typhosp	5												
short/long care	2		*		*				*	*			
bed size	6					*							
no. dietitians	3					*							
position title	5												
no. of years	4					*	*	*	*	*			
R.D.	1			*									
oper. of food-service	2												
menu planner--reg.	2					*	*	*	*	*			
mod. menu	3												
personnel menu	3	*					*	*	*	*			
new set menu	3												
type reg. diet menu	4												
cycle menu	5					*	*	*	*	*			
length menu cycle	6												
residual	280												
mean square residual		.17	.25	.37	.17	.23	.28	.35	.19	.23	.51	.84	.33

Table 13: (cont.)

source	d.f.	importance scores				time consideration scores				priority scores								
		4.1	4.2	4.3	4.4	4	subcompetency	4.1	4.2	4.3	4.4	4	subcompetency	4.1	4.2	4.3	4.4	4
tyhosp	5																	
short/long care	2		*			*										*		*
bed size	6																	
no. dietitians	3							*					*					
position title	5		*						*					*				
no. of years	4							*	*			*						
R.D.	1																	
oper. of food-service	2																	
menu planner--reg.	2	*				*		*	*		*	*	*	*		*		*
mod. menu	3																	
personnel menu	3															*		
new set menu	3																	
type reg. diet menu	4																	
cycle menu	5																	
length menu cycle	6																	
residual	280																	
mean square residual		.24	.25	.26	.24	.17	.27	.34	.29	.27	.20	.49	.44	.51	.43	.30		

Table 13: (cont.)

source	d.f.	importance scores		time consideration scores		priority scores	
		subcompetency		subcompetency		subcompetency	
		5.1		5.1		5.1	
typhosp	5						
short/long care	2			*			
bed size	6						
no. dietitians	3						
position title	5	*		*		*	
no. of years	4						
R.D.	1						
oper. of food- service	2						
menu planner--reg.	2			*			
mod. menu	3						
personnel menu	3						
new set menu	3						
type reg. diet menu	4	*		*		*	
cycle menu	5						
length menu cycle	6						
residual	278						
mean square residual		.23		.29		.43	

ANALYSIS OF FIFTEEN FACTORS AFFECTING
MENU PLANNING COMPETENCIES

by

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AN ABSTRACT OF A MASTER'S THESIS

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ABSTRACT

This study was based on the recommendation of Morales et al. that research scores from their study should be analyzed by criteria other than levels of practice. In the research reported in this paper, the Morales data were reanalyzed using analysis of variance with the purpose of identifying the effects of fifteen selected variables on menu planning competencies in dietetic practice.

The instrument used in collecting the data consisted of five competency statements, sixteen subcompetencies, and ninety-two descriptor items. The descriptors were rated using three scales: importance, time consideration, and priority. Competency and subcompetency scores were computed from the descriptor scores for each of the three scales.

Importance ratings for several subcompetencies were influenced by "present position." Type of responsibility for planning regular diet menus, type of present position, and type of care provided by an institution (short/long term) also affected several subcompetencies. "Years of practice" had the greatest influence on menu planning subcompetencies in relation to time consideration ratings.

Whether the institutions provided short or long term care had the greatest effect on importance ratings for three competencies. On the time consideration rating, years of practice had the greatest effect on all competencies except one statement (uses effective merchandising techniques). Type of position affected ratings on all three scales for the competency statement concerned with merchandising menus.

The findings showed that "years of practice" had an important effect on menu planning in relation to frequency of time consideration. This confirms the results of Morales et al. that the more experienced practitioners considered the competency statements as requiring more frequent time consideration than did the less experienced dietitians. However, other variables had impact as well, such as responsibility for planning regular diet menus, type of present position, and type of care provided by an institution.